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September 24, 2010

Dr. J. Michael Davis  
c/o Office of Environmental Information (OEI) Docket  
Mail Code: 2822T  
U.S. EPA  
1200 Pennsylvania Avenue, N.W.  
Washington D.C. 20460

**RE: Docket ID No.: EPA-HQ-ORD-2010-0658**

Dear Dr. Davis:

Thank you for the opportunity to provide comments on EPA's draft report entitled: "Nanomaterial Case Study: Nanoscale Silver in Disinfectant Spray."

As background, Tri-TAC is a technical advisory group for Publicly Owned Treatment Works (POTWs) in California. Tri-TAC is jointly sponsored by the California Association of Sanitation Agencies, the California Water Environment Association, and the League of California Cities. The constituency base for Tri-TAC collects, treats, and reclaims more than two billion gallons of wastewater each day and serves more than 90% of the sewered population of California.

Tri-TAC's member agencies are very concerned about the water quality impacts of the use of nanosilver, silver ions and similar metals as disinfectants. We have noted the increased marketing of household products that contain nanomaterials and metallic ions. Products such as these will result in releases to the sanitary sewer and storm drains when cleaning and rainfall mobilizes the materials. These concerns have been expressed in previous letters from Tri-TAC.

Tri-TAC greatly appreciates the work that EPA has done in putting together the Nanomaterials Case Study. As recognized in Chapter 6 of the report, there are many unanswered questions. We request that EPA add these questions to the existing list of follow-up questions (at the end of Chapter 6) and continue its research as quickly as possible:

- 1) What quantities of nanomaterials and metallic ions are now being used as antimicrobial agents in commercial products, both those registered and not registered by EPA?
- 2) What percentage of metallic nanomaterials will be converted to the ionic form prior to and during the wastewater treatment process?

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- 3) What fraction of nanomaterials and metallic ions will end up in the treated wastewater and what fraction will end up in the biosolids?
- 4) What is the anticipated removal efficiency of nanomaterials in wastewater treatment plants?
- 5) What quantities and concentrations of nanomaterials and metallic ions will be released to POTWs and the natural environment from the cumulative total of these products being marketed and registered?
- 6) What affect does nanosilver have on biological wastewater treatment processes such as those used in municipal wastewater treatment plants? To what extent could nanosilver reduce treatment effectiveness, increasing releases of other pollutants into surface waters?
- 7) If it is shown that nanomaterials partition to biosolids, what impacts will that impart on the beneficial use of biosolids?

Silver is highly toxic to aquatic life at low concentrations, and also bioaccumulates in some aquatic organisms, such as clams. Due to concerns about bioaccumulation and the placing of strict silver effluent limits in discharge permits, POTWs have implemented pollution prevention programs to identify and reduce silver discharges to sanitary sewer systems. These programs have been very successful in reducing POTW influent and effluent silver concentrations. However, widespread use of household products that release silver into sanitary sewer systems could greatly increase silver concentrations in POTW influents and effluents, leading to adverse effects on California waterways. Due to its small particle size, nanosilver may have unique impacts on biological treatment processes and on the ecosystems receiving wastewater effluent and biosolids. POTWs are subject to Mandatory Minimum Penalties for the violations of their discharge permits that could result. It is distressing to POTWs to observe the increasing prevalence of household products that use nanomaterials and metal ions for general antimicrobial purposes.

Again, our thanks to EPA for working on this important issue. We hope that EPA will answer the follow-up questions as soon as possible; and especially before registering nanosilver products as pesticides. Registering them as pesticides implies, incorrectly, that sufficient studies have been done to determine their impact. EPA's report makes it quite clear that very few fate and transport studies have been done, and that impacts have not been quantified.

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Thank you for your consideration of this matter. If you have any questions or require additional information, please contact Phil Bobel at (650) 329-2285, or [phil.bobel@cityofpaloalto.org](mailto:phil.bobel@cityofpaloalto.org).

Yours truly,



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